

WHAT IS CLAIMED IS:

1. An active matrix device comprising:

a gate line formed over a substrate;

a source line formed over said gate line;

a switching element including a thin film transistor formed at an intersection between said gate line and said source line wherein said source line is electrically connected to a source of said switching element;

a metal interconnection electrically connected to a drain of said switching element wherein said metal interconnection is positioned in a same layer as said source line;

an interlayer insulating film comprising lower and upper insulating layers formed over said source line, said metal interconnection and said switching element, wherein said upper insulating layer has an opening to expose said lower insulating layer in said opening;

a light blocking conductive film formed on said interlayer insulating film, further comprising a capacitor formed at said opening between said light blocking conductive film and said metal interconnection with said lower insulating layer interposed therebetween; and

a pixel electrode electrically connected to said metal interconnection and located over said light blocking conductive film,

wherein said switching element and said capacitor are provided in a region of a pixel where disclination is likely to occur,

wherein said active matrix device is used for an electronic apparatus selected from a video camera, a still camera, a projector, a projection TV, a head-mounted display, a car navigation apparatus, a personal computer and a portable information terminal.

2. An active matrix device comprising:

a gate line formed over a substrate;

a source line formed over said gate line;

a switching element including a thin film transistor formed at an intersection between said gate line and said source line wherein said source line is electrically connected to a source of said switching element;

a metal interconnection electrically connected to a drain of said switching element;

an interlayer insulating film formed over said source line, said metal interconnection and said switching element;

a light blocking conductive film formed on said interlayer insulating film;

a capacitor formed between said metal interconnection and said light blocking conductive film with said interlayer insulating film interposed therebetween,

a pixel electrode electrically connected to said metal interconnection and located over said light blocking conductive film,

wherein said capacitor covers at least an active region of said switching element, said capacitor and said switching element provided below a region where disclination is likely to occur, and

wherein said active matrix device is used for an electronic apparatus selected from a video camera, a still camera, a projector, a projection TV, a head-mounted

display, a car navigation apparatus, a personal computer and a portable information terminal.

3. An active matrix device comprising:

a plurality of gate lines extending in parallel and  
formed over a substrate;

a plurality of source lines extending orthogonally to said plurality of gate lines  
and formed over the substrate;

a plurality of pixels surrounded by said plurality of gate lines and said  
plurality of source lines;

at least one thin film transistor formed in each of said plurality of pixels,  
wherein a gate of said thin film transistor is connected to one of said plurality of gate  
lines and a source of said thin film transistor is connected to one of said plurality of  
source lines;

a pixel electrode formed over said thin film transistor in each of said plurality  
of pixels wherein said pixel electrode is electrically connected to the associated thin  
film transistor;

an orientation film formed on said pixel electrode wherein a surface of the  
orientation film has been rubbed in one direction from one corner of the pixel; and

an auxiliary capacitor electrically connected to the thin film transistor in  
parallel with the pixel electrode wherein said auxiliary capacitor has a light shielding  
property and covers an active region of the thin film transistor,

wherein said auxiliary capacitor is positioned so as to cover a part of said pixel  
including said one corner thereof, and

wherein said active matrix device is used for an electronic apparatus selected from a video camera, a still camera, a projector, a projection TV, a head-mounted display, a car navigation apparatus, a personal computer and a portable information terminal.

4. An active matrix device comprising:
- a plurality of gate lines extending in parallel and formed over a substrate;
  - a plurality of source lines extending orthogonally to said plurality of gate lines and formed over the substrate;
  - a plurality of pixels surrounded by said plurality of gate lines and said plurality of source lines;
  - at least one thin film transistor formed in each of said plurality of pixels;
  - a pixel electrode formed over said thin film transistor in each of said plurality of pixels wherein said pixel electrode is electrically connected to the associated thin film transistor through a metal interconnect;
  - an orientation film formed on said pixel electrode wherein a surface of the orientation film has been rubbed in one direction from one corner of the pixel;
  - a black matrix formed above said thin film transistor and below said pixel electrode, said black matrix comprising a light shielding conductive film; and
  - an auxiliary capacitor formed between said black matrix and said metal interconnect in each of said pixels,
- wherein said auxiliary capacitor is positioned so as to cover a part of said pixel including said one corner thereof, and



6. A device according to claim 5, wherein said thin film transistor is selected from a top-gate thin film transistor and a bottom-gate thin film transistor.

7. A device according to claim 5, wherein said active matrix device is used for an electronic apparatus selected from a video camera, a still camera, a projector, a projection TV, a head-mounted display, a car navigation apparatus, a personal computer and a portable information terminal.

8. An active matrix device comprising:

- a first substrate;
- a second substrate opposed to said first substrate;
- a thin film transistor formed over said first substrate;
- a capacitor connected with said thin film transistor; and
- liquid crystal molecules arranged between said first substrate and said second substrate,

wherein a disclination of said liquid crystal molecules is occurred in a region,  
and wherein said thin film transistor and said capacitor are located below said region.

9. A device according to claim 8, wherein said thin film transistor is selected from a top-gate thin film transistor and a bottom-gate thin film transistor.

10. A device according to claim 8, wherein said active matrix device is used for an electronic apparatus selected from a video camera, a still camera, a projector, a projection TV, a head-mounted display, a car navigation apparatus, a personal computer and a portable information terminal.

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11. An active matrix device comprising:

- a first substrate;
- a second substrate opposed to said first substrate;
- a thin film transistor formed over said first substrate, said thin film transistor comprising an active layer;
- a metal interconnection connected to said active layer;
- an insulating film formed on said metal interconnection;
- a light blocking film formed on said insulating film and over said thin film transistor;
- a capacitor formed between said metal interconnection and said light blocking film with said insulating film interposed therebetween;
- an organic film comprising an organic material formed on said light blocking film;
- a pixel electrode formed on said organic film and connected with said metal interconnection; and
- liquid crystal molecules arranged between said first substrate and said second substrate;

wherein a disclination of said liquid crystal molecules is occurred in a region, and wherein said thin film transistor and said capacitor are located below said region.

12. A device according to claim 11, wherein said thin film transistor is selected from a top-gate thin film transistor and a bottom-gate thin film transistor.

13. A device according to claim 11, wherein said active matrix device is used for an electronic apparatus selected from a video camera, a still camera, a projector, a projection TV, a head-mounted display, a car navigation apparatus, a personal computer and a portable information terminal.

14. An active matrix device comprising:

- a first substrate;
- a second substrate opposed to said first substrate;
- a thin film transistor formed over said first substrate, said thin film transistor comprising an active layer;
- at least two source lines formed over said thin film transistor;
- at least two gate lines intersecting to said two source lines respectively;
- a pixel having a rectangular shape surrounded by said two source lines and said two gate lines;
- a capacitor connected with said thin film transistor; and
- liquid crystal molecules arranged between said first substrate and said second substrate,

wherein a disclination of said liquid crystal molecules is occurred in a region comprising one corner of said pixel, and wherein said capacitor is located in said region.

15. A device according to claim 14, wherein said thin film transistor is selected from a top-gate thin film transistor and a bottom-gate thin film transistor.



16. A device according to claim 14, wherein said active matrix device is used for an electronic apparatus selected from a video camera, a still camera, a projector, a projection TV, a head-mounted display, a car navigation apparatus, a personal computer and a portable information terminal.

17. An active matrix device comprising:

- a first substrate;
- a second substrate opposed to said first substrate;
- a thin film transistor formed over said first substrate, said thin film transistor comprising an active layer;
- at least two source lines formed over said thin film transistor;
- at least two gate lines intersecting to said two source lines respectively;
- a pixel having a rectangular shape surrounded by said two source lines and said two gate lines;
- a capacitor connected with said thin film transistor; and
- liquid crystal molecules arranged between said first substrate and said second substrate,

wherein a disclination of said liquid crystal molecules is occurred in a region comprising one corner of said pixel, and wherein at least a part of said active layer is located in said region.

18. A device according to claim 17, wherein said thin film transistor is selected from a top-gate thin film transistor and a bottom-gate thin film transistor.

19. A device according to claim 17, wherein said active matrix device is used for an electronic apparatus selected from a video camera, a still camera, a projector, a projection TV, a head-mounted display, a car navigation apparatus, a personal computer and a portable information terminal.

20. An active matrix device comprising:

- a first substrate;
- a second substrate opposed to said first substrate;
- a thin film transistor formed over said first substrate, said thin film transistor comprising an active layer;
- at least two source lines formed over said thin film transistor;
- at least two gate lines intersecting to said two source lines respectively;
- a pixel having a rectangular shape surrounded by said two source lines and said two gate lines;
- a capacitor connected with said thin film transistor; and
- liquid crystal molecules arranged between said first substrate and said second substrate,

wherein a disclination of said liquid crystal molecules is occurred in a region comprising one corner of said pixel, and wherein at least a part of said active layer and said capacitor is located in said region.

21. A device according to claim 20, wherein said thin film transistor is selected from a top-gate thin film transistor and a bottom-gate thin film transistor.

22. A device according to claim 20, wherein said active matrix device is used for an electronic apparatus selected from a video camera, a still camera, a projector, a projection TV, a head-mounted display, a car navigation apparatus, a personal computer and a portable information terminal.

23. An active matrix device comprising:

- a first substrate;
- a second substrate opposed to said first substrate;
- a thin film transistor formed over said first substrate, said thin film transistor comprising an active layer;
- a metal interconnection connected to said active layer;
- an insulating film formed on said metal interconnection;
- a light blocking film formed on said insulating film and over said thin film transistor;
- a capacitor formed between said metal interconnection and said light blocking film with said insulating film interposed therebetween;
- an organic film comprising an organic material formed on said light blocking film;
- a pixel electrode formed on said organic film and connected with said metal interconnection; and
- liquid crystal molecules arranged between said first substrate and said second substrate,

wherein a disclination of said liquid crystal molecules is occurred over a region where said pixel electrode is formed.

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24. A device according to claim 23, wherein said thin film transistor is selected from a top-gate thin film transistor and a bottom-gate thin film transistor.

25. A device according to claim 23, wherein said active matrix device is used for an electronic apparatus selected from a video camera, a still camera, a projector, a projection TV, a head-mounted display, a car navigation apparatus, a personal computer and a portable information terminal.

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